

SPECIAL PROBLEMS IN AN ETHNOBOTANICAL LITERATURE SEARCH: *CORDYLINE TERMINALIS* (L.) KUNTH, THE "HAWAIIAN TI PLANT"

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ABSTRACT.—The different kinds of references to plants used by botanists, ethnographers and linguists may confuse ethnobotanists who are trying to follow species through the literature. Changes in botanical nomenclature, use of unfamiliar local and common names, and inadequate differentiation of varieties cause difficulties for researchers looking for references to particular plants. Problems encountered in a search for *Cordyline terminalis* (L.) Kunth, the "Hawaiian ti plant," illustrate these difficulties and point to some ways of resolving them.

RESUMEN.—La diversidad de las alusiones a plantas que emplean los botánicos, los etnógrafos y los lingüistas tiende a confundir a los etnobotánicos que procuren rastrear ciertas especies en las publicaciones científicas. Los cambios de nomenclatura botánica, el uso de términos locales y raros y nombres propios y la distinción insuficiente entre las subdivisiones dificultan la busca de referencias a plantas determinadas de parte de los investigadores. Los problemas encarados en la exploración de *Cordyline terminalis* (L.) Kunth, "Hawaiian ti plant," demuestran esos obstáculos a la vez que indican ciertos métodos para superarlos.

RESUME.—Les différentes sortes de références aux plantes dont les botanistes, les ethnographes et les linguistes se servent peuvent rendre perplexe l'ethnobotaniste occupé à suivre des espèces à travers la littérature. Les changements de nomenclature botanique, l'emploi de noms locaux ou populaires peu familiers, et la différenciation insuffisante entre variétés posent des problèmes à ceux qui sont en train de chercher des références à une plante déterminée. Les problèmes rencontrés au cours de recherches sur *Cordyline terminalis* (L.) Kunth, "Hawaiian ti plant," illustrent ces difficultés et indiquent des moyens de les résoudre.

INTRODUCTION

Recognizing the difficulties of a botanical search.—Botanists, ethnographers and linguists record observations about plants in different ways. While trying to locate all references to the Hawaiian ti plant, *Cordyline terminalis* (L.) Kunth, I have recognized sources of confusion arising from this diversity—difficulties which would attend any similar search. My search is preliminary to a larger study of the species as a constant with variations in names, uses and contexts. Plants like ti, easily propagated from cuttings, have furnished the staple foods of Oceanic peoples (Sauer 1952). By detailing some of the difficulties in following the ti plant, I hope to help others identify plants in the writings of different kinds of specialists.

Plant literature searches and their uses.—Economic botanists, prehistorians, ethnographers and linguists all use native names of plants from published sources (e.g.

Burkill 1935; Barrau 1965; Yen 1974). Through analysis of the distributions of plant names, they find evidence of migration pathways of peoples and the points of origin of the plants themselves. Merrill (1946) recognizes the potential of names—especially Asian names—for botanical work. Conklin (1963) and Sturtevant (1964) use plant names as an aid to understanding human relationships and attitudes. Berlin, Breedlove and Raven (1974) and Brown (1982) analyze native naming as linguistic classification. Other linguists make creative use of botanical terms in their work on proto-languages (e.g. Blust 1983); a dictionary of Austronesian words summing up several studies of Proto-Oceanic, Proto-Melanesian, Proto-Polynesian etc., includes names for *ti* and other plants (Wurm and Wilson 1975:45).

Several authors have offered guidelines for keeping the records straight. Mead (1970) advises anthropologists to collect specimens and have them classified both by natives and by taxonomists rather than introduce errors into the literature. Whistler (1985) prompts botanists to check the accuracy of native names they add to herbarium specimens. But little has been written about ways and means of using or correcting the literature as it is.

*Appearance of ti.*¹—Common names like “cabbage palm” or “victory palm” probably refer to the superficial resemblance between *ti* and small palm trees, with leaves clustering at the ends of uniform stalks marked by regularly spaced leaf scars (Fig. 1). The color varies from bright cherry red to blood-red to purplish, and from light yellowish green to dark green. The finely parallel-veined leaves may be striped or plain, varying greatly in length and width according to variety. The first Hawaiian *ti* was green. The height of the plant at maturity varies from 1-4 m. Individual plants in Tonga live to be 40 years old or more. *Ti* flowers infrequently, with a sweet-smelling terminal inflorescence followed by small baccate fruits.

Why study ti?—*Ti* is interesting ethnobotanically because it has been important in ceremonials of very different cultures. It was “. . . among the objects of greatest use in the ritual of Polynesia” (Oliver 1974:108). It had general applicability in all the rites of the New Guinea Kapauku (Pospisil 1964:34). Tsembaga Maring people, in Papua New Guinea, planted or uprooted it to signal change in the stages of their ritual cycle (Rappaport 1968).² Rappaport (1968:231) quotes personal communication with H.C. Conklin to the effect that *ti* was important in Ifugao rituals in the Philippines. Others have commented about uses of *ti* by other peoples. Petard (1946) and Leenhardt (1946) have focused attention on the species in Polynesia and New Caledonia respectively, and others have referred to it in Malaysia, Southeast Asia, Indonesia, New Guinea, the Philippines and Melanesian islands. Sauer mentions it as an example of early multipurpose domesticates nurtured in his Southeast Asian “cradle of agriculture” (1952:27).

In Hawaii, there is “. . . continuing belief that fresh leaves of green *ti* possess some mystical quality that can protect against spirits, lift *kapus* (taboos) and call down the blessing rather than the wrath of the gods” (Pukui, Haertig and Lee 1972:190). Micronesian magicians chanted to *ti* plants, naming various causes of death and expecting the plant to tremble in response to the right cause (Brower



—(Photographs by Paul Ehrlich.)

FIG. 1.—Flowering red ti in the garden of the Bishop Museum, Honolulu.
Young green ti beside the access road to Waimea State Park, Oahu.

1974). In New Caledonia, the plant symbolized the perenniality of the social life of the clan (Leenhardt 1946:192). Malays ascribed occult powers to *ti*, especially to the red varieties (Burkill 1935:662). Toradja of Sulawesi treated the plant as holy, ". . . the magic herb par excellence" (Adriani and Kruyt 1951:35).

Uses of ti.—*Ti* leaves were a source of leaf girdles in western and central Polynesia, although the Hawaiian hula skirt may have been introduced late by Gilbert Islanders (Handy and Handy 1972:225). The plant furnished food—the cooked rhizome is rich in fructosans (Barrau 1961:60). For unknown reasons, most Melaneans did *not* eat it (Leenhardt 1946:193). One might guess that the role of the plant in sorcery made it appear dangerous. Fiji is like Polynesia; some people there did eat *ti* rhizomes. *Ti* makes good fences because it cannot easily be moved without leaving traces. The leaves make wrappers for small articles and for food cooked in earth ovens. Stalks of *ti* are ideal swatters for mosquitoes. Mundane uses for the plant abound. But the reason for using this particular plant in the rituals of so many different peoples remains a mystery. It looks as though the plant had acquired a reputation for efficacy with spirits even before the peoples became differentiated. If so, the patterns of names, varieties and uses should reflect, at least to some extent, the prehistory of the peoples.

BOTANICAL IDENTIFICATION

Distribution.—Van Balgooy (1971:179) summarizes the places in the Pacific from which *Cordyline* is "reliably recorded," "doubtfully indigenous" and "not reported." The former include the Mascarene islands, East Asia, Southeast Asia, Malesia, the Philippines, New Guinea, Australia, New Caledonia, Norfolk island, the Kermadecs, New Zealand and South America. The genus is "doubtfully indigenous" in the Bismarcks, Solomons, New Hebrides, Loyalties, Carolines and Polynesia. It has not been reported from Eurasia, Santa Cruz, the Chatham Islands, the Bonins or the Marianas.

Origin.—Uncertainly, experts say that *ti* is probably native to Southeast Asia (Baker 1875:538; Smith 1979:151). However, Yen (1987:8) has suggested recently that it may have been domesticated first in New Guinea. Ridley (1924:331) also proposed a New Guinea origin, maintaining that *ti* on the Malay Peninsula was always cultivated. I have seen no opinion as to how one *Cordyline* species got to Brazil. The plant grows easily from stem cuttings or from rhizomes, and, in some varieties, from seed. In Hawaii, where the earliest known variety is green, *ti* seeds are apparently infertile, however (Yen 1987:10). It would be interesting to find out whether the South American species produces fertile seeds.

Botanical status.—Formerly placed in the family Liliaceae (e.g. Brown 1914), the genus *Cordyline* recently has been classed in the Agavaceae by most botanists (e.g. Cronquist 1981). The Agavaceae differ from the Liliaceae primarily in growth habit (Cronquist 1981:1220). *Dracaena*, *Nolina*, *Sansevieria* and probably *Cordyline* differ from *Yucca* and *Agave* on serological grounds, but resemble them in other ways, so the classification of these groups is difficult (Cronquist 1981:1221).

Hutchinson established a tribe, Dracaeneae, joining *Dracaena*, *Cohnia*, and *Cordyline* (1973:664). Dahlgren, Clifford and Yeo (1985:147-49) put *Cordyline* into the Asteliaceae because the genus *Cohnia* forms a link between *Astelia* and *Cordyline*. However, the spinulose pollen that characterizes the Asteliaceae is not present in *Cordyline*.

Morphologically, *Cordyline* differs from *Dracaena*. Tomlinson and Fisher (1971) conclude that *Cordyline* is a natural genus, with embryo growth markedly different from that of most monocots in that a "rhizome bud" emerges from the seedling at an early stage and takes over. The axis of the plant grows both from the top and from the bottom of the seedling in opposite directions. *Dracaena* does not have such taproots but, like *Cordyline*, has another characteristic unusual for monocots—secondary thickening in its stem and true roots. *Cordyline* leaves also tend to be more flexible than *Dracaena* leaves because of structural differences. To a layman, however, these differences are insignificant. Nurserymen tend to lump the two genera, and it is not surprising that the general public should do the same.

The correct name for a species is the earliest published name of all type specimens that fit the species concept, but botanists do not agree as to the correct species epithet for this plant. Table 1 shows that the plant Smith calls *C. terminalis* was once called *C. fruticosa* A. Chev., and before that, *Taetsia fruticosa* Merr. Kunth usually is credited for first using the name *Cordyline terminalis* (which he applied to the plant Linnaeus had called *Asparagus terminalis*), but Fosberg (1985) has questioned this attribution because the type specimen was a garden plant, not collected in the wild, and concludes that *Cordyline fruticosa* A. Chev. is correct after all. Only a botanist well versed in nomenclature is likely to be current with such fine points of taxonomy. While the genus *Cordyline* has achieved the status of conserved name among professional botanists, the species designation *terminalis* has not. I am using *Cordyline terminalis* for the present because the Botanical Congress of 1983 (Voss ed. 1983) accepted this species name rather than *Cordyline fruticosa*.

Even if both generic and specific terms had special sanction, an ethnobotanist would have to search the literature for all the names the plant had been called, correctly or incorrectly. I have 15 references to *C. fruticosa*; 10 to *Dracaena terminalis* (L.) or *Dracaena ferrea* (L.) (both often used to distinguish red from green varieties); and five to *Taetsia fruticosa* as well as 65 to *Cordyline terminalis*. I also found references to *C. terminalis* under *Terminalis*, the name Rumphius used in the manuscript he sent to Europe from Amboy Island in 1696 (Merrill 1917:16). Rumphius named four varieties of *Terminalis* (1741, 1755).

PROBLEMS OF AN ETHNOBOTANICAL SEARCH

Synonyms.—The objective of a botanical synonymy is to provide a minimal historical run-down on the nomenclature of the plant. A synonymy for botanists should list older names which have been applied incorrectly and discarded. "Synonymy" to a botanist does not imply, of course, that it is proper to substitute one species name for another. An ethnobotanist should realize that an author may have written about *Terminalis*, *Charlwoodia* or *Calodracon*, and recognize these

TABLE 1.—Synonymy of *Cordyline Terminalis*: Agavaceae.

—(Adapted from A.C. Smith 1979:149)

Genus:	<i>Cordyline terminalis</i> Commerson ex Juss.
Species:	<i>Cordyline terminalis</i> (L.) Kunth in Abh. Konigl. Akad. Wiss. Berlin 1842.
Derivation:	<i>Convallaria fruticosa</i> L. Herb. Amb. 16, 1754, Amoen. Acad. 4:126. 1759. <i>Asparagus terminalis</i> L. Sp. Pl. ed. 2. 450, 1762. <i>Dracaena terminalis</i> Lamm. Encycl. Meth. Bot., 2:324. 1786; B.E.V. Parham in Agr. J. Dept. Agr. Fiji 13:42. 1942. <i>Cordyline jacquini</i> Kunth in Abh. Konigl. Akad. Wiss. Berlin 30. 1842. <i>Cordyline</i> sp. Seem. in Bonplandia 9:260. 1861, Viti, 443. 1862. <i>Cordyline jacquinii</i> Kunth ex Seem. Fl. Vit. 311. 1868. Drake, I11. Fl. Ins. Mar. Pac. 319. 1892. <i>Dracaena sepiaria</i> Seem. Fl. Vit.t. 94. 1868. <i>Cordyline terminalis</i> var. <i>sepiaria</i> Baker in J. Linn. Soc. Bot. 14:540. 1875; Engl. in Bot. Jahrb. 7:488. 1886. <i>Taetsia fruticosa</i> Merr. Interpret. Rumph. Herb. Amb. 137. 1917. A.C. Sm. in Sci. Monthly, 73:14. Fig. 1951. <i>Cordyline fruticosa</i> A. Chev. Cat. Pl. Jard. Bot. Saigon, 66. 1919; non Goepf. (1855).

as pre-Linnaean names for **ti**. Dictionaries and encyclopedias are necessary adjuncts to floras and most other botanical works. Anthropologists, however, may not know where to look for proper synonymies. Species designations always refer to herbarium specimens, and change when scholars discover that earlier classifications of those specimens have been inappropriate. Different names then refer to the same plant, but again, the earlier names persist in the literature.

I have learned to look for all the names botanists have called **ti** plants, correctly or incorrectly. The maze of names referring to **ti** may be a "worst case" in that a common name of the plant, "dracaena," is the botanical name for a closely related genus, but otherwise, it is probably typical.

Common names/native names.—I had difficulty identifying **ti** when described by anthropologists, usually not themselves taxonomists, who have used common or native names with little description of their referents. Although reported native and common names are notoriously unreliable, I have sometimes been able to evaluate them. Extensive lists of native names are usually helpful, especially when pronunciation is unambiguously indicated. Now that linguists are able to identify cognates in different languages with considerable sophistication, lists of

native names offer a good deal of information. Many ethnobotanists have profited from the writings of linguists in analyzing such lists. Even when diacritical marks or exact phonetic transcriptions are lacking, a list of native names may be useful. Translated, they may reveal the native attitude towards the plant.

Native names may reflect classification systems different from the Linnaean—may indicate interests taxonomists find irrelevant (Brown 1982). A plant with many varieties, like **ti**, may have names that denote different paradigmatic levels (Dentan 1988). Categorization may depend on perceived resemblance to basic members rather than the exclusive characteristics botanists look for (Rosch 1978: 35-41). But linguists also have problems identifying plants in the literature. Before analyzing native categories, linguists must find out whether the plant an author mentions is or is not **ti**.

Why don't they mention ti?—If *Cordyline*, *Taetsia* and *Dracaena* are absent from what purports to be a comprehensive flora of an island, the author of the flora may mean either that the plants have not been found in that locality or that they are not wild there. If plants of these genera do not grow there, references to them by non-specialists are probably erroneous. If they do grow there, but only as cultivated plants, that is relevant information. Authors help when they say whether or not their works include feral plants.

Varieties.—Part of an ethnobotanist's task is to find all the cultivated varieties (more properly "cultivars") in each locality. Smith (1979:152) judges that the existence of "innumerable cultivars" make infraspecific classification of **ti** varieties pointless. Herbarium labels on specimens of the plant may or may not cite the color of the plant when it was living, which would matter little if anthocyanin pigments did not tend to vanish in herbarium specimens. The information is not often germane to the taxonomist's task, but it is important because ethnic uses of plants are often specific to particular varieties distinguished by leaf color. In Tonga, where many ornamental varieties have been introduced recently, the "old" ones were probably the green **si futu**, the reddish **si kula**, and the two-tone **si tongotongo**. The first has especially good, sugary rhizomes for cooking in earth ovens; the second adds red color to leis and dance skirts; and the last has especially long leaves for the same purpose. These varieties all persist around abandoned house sites and plantations. An ethnobotanist has to ask why each variety of the species was cultivated. People probably had a culturally defined reason for perpetuating each variety (R.I. Ford pers. comm. 1986).

PROBLEMS IN IDENTIFYING TI IN THE LITERATURE

Dracaena terminalis.—In his work on the Lau Islands of Fiji, Hocart (1929:107) refers many times to dracaena and *Dracaena*, once to *Dracaena terminalis*. This last occurs under a subheading "Sugar Cane," and continues with information about making sugar from the root. How many other "sugar canes" in the literature are **ti** is hard to say, but *Dracaena terminalis* here identifies Hocart's "dracaena" as *Cordyline terminalis*. If Codrington (1891:20-21) had given this much information, one could identify the "kind of sugar cane" that "gave rise to humans"

in a Melanesian myth. On the Polynesian island of Niue (Thomson 1901:86) and in Guadalcanal (Hogbin 1979:16), myths do have humans originating from a **ti** plant. In Tahiti, it was the **ti** plant that arose from a human shin bone (Henry 1928:421).

"Crotons," "dracaenas" and "cordylines."—Besides **ti**, the common name for *C. terminalis*, "dracaena," is especially confusing since there is actually a genus *Dracaena*. Hocart's "dracaena" (1929:107) refers only to *Cordyline*. Plants in the genus *Dracaena*, also in the Agavaceae, are tropical ornamentals that grow in some parts of the Pacific as well as in Africa. The original Socotra "dragon's blood tree" was *Dracaena cinnabari* Balf., while the Teneriffe "dragon's blood tree," which supposedly lived to be 6000 years old, was *Dracaena draco* L. (Willis 1919:228). A writer might use "dracaena" in the belief that it was a scientific name. When Williamson [1924(1):320] wrote of a "tii" plant and called it a "dracaena," he probably meant a **ti**; "tii" is Proto-Oceanic for "CORDYLINE (SPECIES)" (Wurm and Wilson 1975:45).

Some British writers appear to have used "croton," another tropical genus, as an all-purpose term for tropical plants with colorful leaves. "Croton" may refer to *Dracaena*, *Pleomele* or *Cordyline* as well as to true *Croton* (L.) or *Codiaeum variegatum* Blume. To Fortune (1963:114), working on the island of Dobu, off Papua New Guinea, a green **ti** was apparently *C. terminalis*, while a red one was a "croton." Fortune identified the greens **pies** plant collected by an old women magician, as *C. terminalis* ". . . commonly known by its Polynesian name, the **ti** plant." Trobrianders used to travel to Dobu to collect it for use in garden magic. But then he says that **ti** is ". . . allied to the crotons planted over graveyards amongst the Massim, although the Massim use colored crotons in preference to the green *Cordyline terminalis*." He continues, complaining that Codrington (1891) referred repeatedly to the use of crotons by the Solomon Islands, but did not say ". . . whether he meant *Cordyline terminalis* or one of the the colored varieties" (1963:115). Possibly Fortune was confused because the original Hawaiian **ti** was green.

Another anthropologist, Chowning (1963), speaks of a "croton group" which includes *Cycas* as well as *Codiaeum* and *Cordyline* and is used for magico-religious purposes in Melanesia. Berndt (1962) worked among the Fore of Highland New Guinea collecting information about activities using unidentified "red and green crotons." Whether the fact that Gajdusek later (1976) found cordylines among Fore indicates that Berndt's "crotons" were cordylines is problematic. Blust (1983-84:108) confirms that "croton" has been used as a generic term for *Cordyline*, *Pleomele* and *Dracaena*.

Mead (1947:409-412), while walking around a New Guinea Arapesh village with two young boys, recorded what they told her about plants. In her text, she gives the native names, but also "croton" and "dracaena," the latter sometimes in italics and sometimes not. By and large, she avoids guessing at scientific names and gives both common and native ones. Was "dracaena" a common name for *Cordyline*? Tuzin (1976:9) mentioned "crotons, cordylines and flowers" being used by Arapesh at a later date, describing the "crotons" as "marbled," which

probably meant that he did distinguish *Codiaeum* or *Croton* from *Cordyline*. Tuzin apparently substituted "cordyline" for Mead's "dracaena."

Austronesian/native names.—Wurm and Wilson (1975) list "CORDYLINE (SPECIES)" with its names in Proto-Oceanic (*ntiRi* and *tii*), Proto-Malaitan (*dili*) and Proto-Polynesian (*tii*), and also "DRACAENA (*Cordyline*)" as Proto-Oceanic (*ntiRi*) and Proto-Malaitan (*dili*), suggesting that while "DRACAENA" could be *Cordyline*, "CORDYLINE" could not be *Dracaena*.

The missionary ethnographer, W.G. Ivens, who lived for many years in the Solomon Islands, wrote extensively about native use of "dracaena" without giving a scientific name. However, he also gave his own translation of a lullaby about a "little bird of dracaena" in which the native word for "dracaena" was *dili* (1927:105). Since "*dili*" is Proto-Malaitan for *ti*, Ivens apparently meant *Cordyline*, not *Dracaena*, by the word "dracaena." Kwara'ae, another group of people in the Solomons, use *dili* not only for *C. terminalis*, but as "a religious term for applying magic" (Whitmore 1966:120). That the same word should be used for the plant by chance seems unlikely. "*Dilly*" appears elsewhere as an alternative native name for the red *nahogle*, one of two plants always found near the altars where natives of Santa Ysabel in the Solomons carried out human sacrifice (Lagasu 1986:49). *Nahogle* was probably a variety of *ti*.

Pidgin English.—Pidgin English names are helpful insofar as they cover a wide area and have the same referent. New Guinea pidgin for *cordyline* appears as "tanket," "tanget," "tangget," "tangkset" or "tanked." In a brief encyclopedia entry, Lawrence (1972) identifies "tangkset" as *C. terminalis* and comments that *Dracaena angustifolia*, which Brown (1914:277) reclassified as *Pleomele*, occurs only wild, while *Cordyline* is cultivated. Most New Guinea specialists restrict the pidgin term to *Cordyline*, although Mead (1940:398) suggests that "nettles" and "dracaenas" might be "tanggets" too. A "tanget" in this sense is a plant used in magic, especially sorcery. *C. terminalis* in Tagalog is "tungkod," which means "cane of priests" (Co and Teguba 1984:272). Native names for *ti* in several other languages refer to "priests." Native names together with pidgin can provide good identification. There may be several native names for a single pidgin one, often distinguishing different varieties or uses. The native name is the more specific.

Asian names.—I looked for references to *C. terminalis* in Asia, since many botanists point to Southeast Asia as its probable point of origin. The Chinese common name in Pinyin notation is *tie shu* (Chung 1924:11; Ch'en 1937:104). The most valuable sources give the name of the plant in Latin, in English and in Chinese characters, from which a skilled linguist can sometimes infer hidden meanings. For unknown reasons, the characters for *C. terminalis* translate as "iron tree." There are various forms of the names, both in Chinese and in English, but Lin (pers. com. 1986) has determined that they are all fundamentally the same. The character for *Cordyline* also denotes "vermilion," which is odd because all the plants I saw growing along the coast between Shanghai and Canton were green. Red ones are common in Hong Kong (pers. obs.).

A "common-name problem" arises in that the palm-like (but totally unrelated) cycad, *Cycas revoluta* Thunbg., is also "iron tree" in several Chinese sources. Even the Chinese characters say "iron tree," with slight variations. One source gives an entirely different Chinese name for *Cycas* in Goa, without providing the characters (Soares 1963). I suspect that reports of *Cordyline* and *Cycas* have been muddled in the literature from an early date. Bretschneider, a physician who compiled a large work on early plant explorers in China, does not mention *Cordyline*, although he gives three English transcriptions of Chinese names for *Cycas revoluta*: **titsju**, **tie shu** and **tie tsiao** [1898(1):27]. Bretschneider was citing Rumphius, about whose identifications there has been much confusion, probably through no fault of his own (Merrill 1917). The reason Chowning (1963) found *Cycas*, *Cordyline* and *Codiaeum variegatum* to be a "croton group" may have been that "iron plants" were lumped together in some very early Asian culture. I am hoping to find a reasonable explanation for the Chinese association of vermilion and iron with **ti** plants in the final assembly of uses and names.

Names and varieties.—Tongans I interviewed (Sept.-Jan. 1987-88), did not recognize all of the dictionary names (e.g. **si tauvalu**) mentioned by Churchward (1949). One "variety" of **ti** listed in Churchward, **si matale'a** (meaning "tiny"), may be **si futu** growing under poor conditions, e.g. shortly after people have removed the root or horses have eaten all the leaves. **Si melo** has brown leaves—naturally dried brown leaves. Several recently imported varieties have names not in the dictionary. Tongans recognize that specimens of *Dracaena* in their gardens are recent introductions.

Variable spelling.—In the Fijian Dictionary Project, Geraghty (pers. comm. 1987) has carefully mapped the names for varieties of different color separately, indicating where each one is used for what. Churchward (1959) mentions three spellings for the Tongan name, usually **si**, but sometimes **chi** (Martin 1827) or **ji** (West 1865). But is **rau tea** (Firth 1967:154, 174, 216, 243, 360, 434) the same as **rau ti**, the name for *Cordyline fruticosa/terminalis* (Firth 1985:521)? Few authors have written extensively enough for such apparent errors to show up.

Human Relations Area Files, Category 824, Ethnobotany.—Under "Ethnobotany," this collection of excerpts from the writing of many ethnographers (Murdock *et al.* 1967) offers easy access to information about plants, subject to the limitations just described. Coders cannot improve on the quality of the original material. Checking Category 824 allows researchers to locate and scan a wider area than the one of primary interest. However, it may be risky to conclude that a plant is unimportant in a culture because no ethnographers covered by the Human Relations Area Files mention it.

CONCLUSIONS

For the task of identifying *C. terminalis* in the literature, botanical, linguistic and anthropological clues have all been useful. Information from each discipline has helped solve puzzles that arise because of the specialized styles of reporting

in others. Anthropologists and other non-botanists may have no idea how frequently scientific names change. Common names also cause confusion. To cope with literature from all these specialists, ethnobotanists must know both the jargon and methods of reporting of each; words like "type" and "synonym," for instance, can easily mislead a person trained only in ethnology. The best strategy for finding older botanical names is to look first in a recent flora that covers the area of interest. Older works mentioned there may contain additional synonyms not published in the recent flora.

Botanists could help by noting the appearance of living plants and recording native as well as common names. A "red dracaena" is probably not *Dracaena* at all, for example.

Ethnographers could make their writings more useful by including several kinds of information about plants—descriptions as well as English common, native and pidgin names.

Lexicographers could help a great deal by pinpointing the venue of varietal names they obtain in the field, noting the most salient characteristics of each plant to which they refer. Like botanists and ethnographers, they need to exercise caution in attaching native and common names to botanical species.

Practically speaking, ethnobotanists have to work with materials that are full of errors of different kinds, but sometimes, by combining information from several disciplines, they can correct the errors. The expectations and conventions of those who write about plants in specialized disciplines are different. The records they leave are different. So anyone looking for all possible references to a particular plant needs special skills and strategies in order to find them.

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NOTES

¹For convenience, I refer to *Cordyline terminalis* as *ti* except for direct quotes or discussion of taxonomic matters.

²A footnote in this work (Rappaport 1968:213) first prompted me to investigate *ti*.

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